REMARKS/ARGUMENTS

Reconsideration is requested in view of the following remarks. Claim 26 has been editorially revised. Support for the claim revisions is found in paragraphs [0003] and [0016]-[0017] of the specification. Claims 26-31 remain under consideration in the present application.

Claim Rejections – 35 USC §103

Claims 26-31 stand rejected under 35 U.S.C. §103(a) as unpatentable over Corbeil et al. (US Pub. No. 2004/0262526 A1) in view of Mir et al. (US 5,064,684) or Borelli et al. (US 6,796,148). Applicant respectfully traverses this rejection.

Claim 26 is directed to an anisotropic scintillator for use in an imaging system comprising:

a scintillator element comprised of a scintillator material having a first optical property;

a three-dimensional pattern formed in said scintillator element utilizing a pulse laser, said pulse laser altering said first optical property at a plurality of discrete locations in said scintillator element such that said three dimensional pattern is comprised of scintillator material having complex anisotropic portions and such that said three dimensional pattern forms localized channel regions in said scintillator element;

wherein said three-dimensional pattern is configured to control the spread of photons to achieve desired signal sharing among the plurality of regions having borders defined by the plurality of discrete locations within said scintillator element; and

further wherein said complex anisotropic portions are configured via at least one of a variety of optical properties to allow reliable centroid determination.

The Advisory action asserts that Corbeil et al. also discloses that the product made would be a light guide, one that allows the internal manipulation of light waves and

higher efficiency in the control and collection of scintillation light; and that as the primary reference is directed to controlling and collecting light, the formation of a scintillator waveguide that would allow optical sharing is not beyond the scope of the disclosure therein.

The invention of Corbeil et al. is directed however, only to optical segmentation with characteristics similar to detector arrays and necessarily requires micro-voids to manipulate light waves to enhance the control and collection of the resultant scintillation light, allowing for the accurate decoding of the impinging radiation. Corbeil et al. clearly state in paragraph [0039] that the various configurations are dependent upon various factors, but are selected to function with similar or improved results as compared to reflective surfaces provided in prior art devices. The various embodiments described by Corbeil et al. are all directed to detectors, light guides and scintillator arrays using improved optical segmentation between adjacent regions as opposed to optical sharing between regions such as required by the claimed invention.

Further, nowhere do Corbeil et al. alone or in combination with Mir et al. and Borrelli et al. teach or suggest a three dimensional pattern is comprised of scintillator material having complex anisotropic portions configured via a variety of optical properties to allow reliable centroid determination and such that said three dimensional pattern forms localized channel regions in said scintillator element; and wherein said three-dimensional pattern is configured to control the spread of photons to achieve desired signal sharing among the plurality of regions having borders defined by the plurality of discrete locations within said scintillator element. Corbeil et al. alone or in combination with Mir et al. and Borrelli et al. are completely silent regarding centroid determination. In fact, each of the cited references is directed to a single optical property. The invention of Corbeil et al., for example, is directed to optical isolation, while the inventions of both Mir et al. and Borrelli et al. are each directed to an optical property that corresponds only to a waveguide. Waveguides also require optical isolation for efficiency.

The Advisory action further asserts that Mir et al. and Borrelli et al. teach an altering of the material so that the properties at the desired points are changed; and that this feature would allow the instant guiding of the x-rays to thereby afford the instant sharing, rather than setting up definite reflective boundaries. The inventions of both Mir et al. and Borrelli et al. are directed only to waveguides for guiding optical photons, not x-rays or gamma rays, down a waveguide element without losing light to neighboring elements. Both Mir et al. and Borrelli et al. are completely silent regarding altering of the material to allow the instant guiding of the x-rays to thereby afford the instant sharing. This feature can be found only in applicant's specification. The inventions of Corbeil et al., Mir et al. and Borrelli et al., alone or in combination, can only be modified to arrive at the claimed invention by improperly using the applicant's specification as a template and sole motivation for the modification.

Mir et al. and Borrelli et al. each teach only forming a waveguide in which substantially the entire volume of the waveguide consists of a laser modified region bearing no relation to optical sharing. The claimed invention is directed to optical sharing among a plurality of regions having borders defined by a plurality of discrete locations within a scintillator element, a feature that is undesirable with waveguides.

Use of optical sharing between regions would defeat the purpose of the invention of Corbeil et al. which requires optical segmentation to achieve accurate decoding of impinging radiation. Therefore, one skilled in the art would not be motivated to modify the invention of Corbeil et al. by allowing optical sharing between different laser modified regions.

The claimed invention relies on sharing of light between elements and does not guide light down the element without intentionally losing light to neighboring elements. This is different than the invention of Corbeil et al., whether a scintillator or light guide, that guides light down an element without losing light to neigboring elements since the invention of Corbeil et al. requires optical segmentation to achieve accurate decoding of impinging radiation.

Waveguides are well known in the art as structures having cross-section dimensions on the order of the wavelength of the light being guided, i.e. a few microns to a hundred microns. Waveguides rely on the wave-like nature of light. The claimed invention is not a waveguide, but instead is a scintillator. The claimed invention relies on optical sharing among a plurality of adjacent regions having borders defined by a plurality of laser modified discrete locations within a scintillator element, a feature neither disclosed nor suggested by Corbeil et al. alone or in combination with Mir et al. and Borrelli et al.

Precise control of signal sharing among a plurality of regions having borders defined by a plurality of discrete locations within a scintillator element is neither disclosed nor suggested by Corbeil et al. alone or in combination with Mir et al. and Borrelli et al. The cited references are entirely silent regarding this claimed feature. The only motivation to combine the cited references in a manner that teaches the claimed invention is applicant's specification, which is an improper basis for so combining the cited references. Mir et al. and Borrelli et al. only teach laser techniques for producing waveguides that rely on high efficiency without loss of light. The claimed invention relies instead on signal sharing between adjacent regions, a feature that is undesirable in waveguides. The inventions of Mir et al. and Borrelli et al. rely instead on prevention of signal sharing between adjacent regions to provide an efficient waveguide.

In view of the foregoing, there is no good reason why a person skilled in the art would be motivated to modify the invention of Corbeil et al. by allowing optical sharing between different laser modified regions, as recited in claim 26 without improperly using the claimed invention as a template.

For at least these reasons, claim 26 is patentable over Corbeil et al. alone or in combination with Mir et al. and Borrelli et al. Claims 27-31 are patentable over Corbeil et al. alone or in combination with Mir et al. and Borrelli et al. through their dependency from claim 26 that is allowable. Applicant does not concede the correctness of the rejection.

Favorable reconsideration in the form of a Notice of Allowance is requested. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at (507) 351-4450.

Respectfully submitted,

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